# RECEIVED

June 1, 2012

## JUN 12 2012

### SUPERFUND DIVISION

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5<sup>th</sup> Street
Kansas City, KS 66101

Re: The Doe Run Company - Leadwood Mine Tailings Site Monthly Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 50 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0272) for the referenced project and on behalf of The Doe Run Company, the progress report for the period April 1, 2012 through April 30, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0800.

Sincerely,

T/y L. Morris, P.E., R.G.

Vice President

TLM/jms Enclosures

c: Mark Nations - TDRC

Matt Wohl - TDRC (electronic only)

Kathy Rangen - MDNR

Tim Skoglund - Barr Engineering

40389790 Superfund

### Leadwood Mine Tailings Site

Leadwood, Missouri

### Removal Action - Monthly Progress Report

Period: April 1, 2012 – April 30, 2012

#### 1. Actions Performed or Completed This Period:

a. No activities were completed at the site during the period.

### 2. Data and Results Received This Period:

- a. During this period, water samples were collected from downstream of Leadwood Dam and the East Seep and Erosion Area, as well as from upstream and downstream of the confluence of Eaton Creek with Big River. The analytical results for this event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Report for January 2012 was received. Any issues identified in these reports are discussed below. A copy of this document has been sent to your attention.

The fourth quarter 2011 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 10/20/11 due to training.
- No samples were taken with the TSP and PM<sub>10</sub> monitors on 11/14/11 due to training.
- No samples were taken with the TSP and PM<sub>10</sub> monitors on 11/23/11, 11/24/11, 11/25/11, and 11/26/11 due to the holiday.
- There was a QA blank filter associated with the Leadwood #2 (Office) TSP monitors and PM<sub>10</sub> on 11/28/11.
- No samples were taken with the Leadwood #2 (Office) TSP monitor on 12/15/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the Big River #4 QA TSP monitor on 12/20/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the Leadwood #3 (School) TSP monitor on 12/21/11 due to mechanical failure. Upon discovery, the issue was corrected.
- No samples were taken with the TSP and PM<sub>10</sub> monitors on 12/22/11, 12/23/11, 12/26/11, 12/29/11, and 12/30/11 due to the holiday.

### 3. Scheduled Activities not Completed This Period:

a. None.

### 4. Planned Activities for Next Period:

- a. Continue vegetation maintenance activities. The use of biosolids will only be continued if a biosolids management plan has been submitted to and approved by EPA.
- b. It is anticipated that EPA will use this site as a soil repository in the future. Preparations for these activities will continue.
- c. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- d. Complete air monitoring activities as described in the Removal Action Work Plan.

### 5. Changes in Personnel:

a. None.

### 6. Issues or Problems Arising This Period:

a. None.

#### 7. Resolution of Issues or Problems Arising This Period:

a. None.



May 01, 2012

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109

TEL: (573) 638-5007 FAX: (573) 638-5001

**RE:** Leadwood MTS-25/86-0013 **WorkOrder:** 12041029

Dear Allison Olds:

TEKLAB, INC received 5 samples on 4/24/2012 11:00:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Elizabeth A. Hurley

Project Manager

(618)344-1004 ex 33

ehurley@teklabinc.com

Elizabeth a thurley



# **Report Contents**

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029
Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

### This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	4
Laboratory Results	5
Sample Summary	10
Dates Report	11
Quality Control Results	13
Receiving Check List	18
Chain of Custody	Appended



### **Definitions**

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

#### Abbr Definition

- CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI Did not ignite
- DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH IL Dept. of Public Health
- LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
  - MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW Molecular weight
- ND Not Detected at the Reporting Limit

#### NELAP NELAP Accredited

- PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC Too numerous to count ( > 200 CFU )

### **Qualifiers**

- # Unknown hydrocarbon
- E Value above quantitation range
- M Manual Integration used to determine area response
- R RPD outside accepted recovery limits
- X Value exceeds Maximum Contaminant Level

- B Analyte detected in associated Method Blank
- H Holding times exceeded
- ND Not Detected at the Reporting Limit
  - S Spike Recovery outside recovery limits



### **Case Narrative**

http://www.teklabinc.com/

Work Order: 12041029

Report Date: 01-May-12

Client: Barr Engineering Company

Client Project: Leadwood MTS-25/86-0013

Cooler Receipt Temp: 5.2 °C

### **Locations and Accreditations**

	Collinsville			Springfield	<u> </u>		Kansas City
Address	5445 Horseshoe Lake Road	l A	ddress	3920 Pintail Dr		Address	8421 Nieman Road
	Collinsville, IL 62234-7425	5		Springfield, IL 627	11- <del>94</del> 15		Lenexa, KS 66214
Phone	(618) 344-1004	Pł	hone	(217) 698-1004		Phone	(913) 541-1998
Fax	(618) 344-1005	Fa	ax	(217) 698-1005		Fax	(913) 541-1998
Email	jhriley@teklabinc.com	E	mail	kmcclain@teklabin	c.com	Email	dthompson@teklabinc.com
State		Dept		Cert#	NELAP	Exp Date	Lab
Illinois	B	IEPA		100226	NELAP	1/31/2013	Collinsville
Kansas	8	KDHE		E-10374	NELAP	1/31/2013	Collinsville
Louisia	ana	LDEQ		166493	NELAP	6/30/2012	Collinsville
Louisia	ana	LDEQ		166578	NELAP	6/30/2012	Springfield
Arkans	585	ADEQ		88-0966		3/14/2013	Collinsville
Illinois	3	IDPH		17584		4/30/2013	Collinsville
Kentuc	cky	UST		0073		5/26/2014	Collinsville
Missou	uri	MDNR		00930		4/13/2013	Collinsville
Oklaho	oma	ODEQ		9978		8/31/2012	Collinsville



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-May-12

Lab ID: 12041029-001

Client Sample ID: LW-001

Matrix: AQUEOUS Collection Date: 04/23/2012 9:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)					THE STATE OF		
Sulfate	NELAP	100		308	mg/L	10	04/26/2012 20:41	R162909
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED		Auditoria			ist balls
Lab pH	NELAP	1.00		8.02		1	04/24/2012 12:42	R162744
STANDARD METHODS 18TH	ED. 2340 C			建筑等的人	2/44			W.L.
Hardness, as ( CaCO3 )	NELAP	5	and the second second second second second	600	mg/L	1	04/24/2012 14:25	R162803
STANDARD METHODS 18TH	ED. 2540 D		A 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	A Company			1	1
Total Suspended Solids	NELAP	6	NAME OF THE OWNER, THE	< 6	mg/L	1	04/25/2012 8:37	R162831
STANDARD METHODS 18TH	ED. 2540 F			<b>秦心</b> 是二位。				
Solids, Settleable	NELAP	0.1	P# 80/00 - 2-50 - 20*120	< 0.1	ml/L	1	04/24/2012 12:33	R162782
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON						1872 E
Total Organic Carbon (TOC)	NELAP	1.0	Designation definition and the second	2.6	mg/L	1	04/26/2012 14:49	R162912
EPA 600 4.1.1, 200.7R4.4, ME	TALS BY ICP (DISSO	LVED)	TELEST !	The Aller	5 7 7	13.1134		
Cadmium	NELAP	2.00	ED PATRICIS PER SOLITA PER	2.60	µg/L	1	04/24/2012 17:28	77495
Zinc	NELAP	10.0		2480	μg/L	1	04/24/2012 17:28	77495
EPA 600 4.1.4, 200.7R4.4, ME	TALS BY ICP (TOTAL					174		i i grafiji
Cadmium	NELAP	2.00	e-sales and a resident	2.90	µg/L	1	04/25/2012 11:43	77499
Zinc	NELAP	10.0		2880	μg/L	1	04/25/2012 11:43	77499
STANDARD METHODS 18TH	ED. 3030 B, 3113 B,	METALS BY	GFAA (	DISSOLVED)				*****
Lead	NELAP	2.00	•	4.36	µg/L	1	04/25/2012 16:53	77498
STANDARD METHODS 18TH	ED. 3030 E, 3113 B, I	METALS BY	GFAA		44.5			4.37年後
Lead	NELAP	2.00	X	9.20	µg/L	1	04/27/2012 10:03	77502



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-May-12

Lab ID: 12041029-002

Client Sample ID: LW-002

Matrix: AQUEOUS

Collection Date: 04/23/2012 9:15

Analyses	Certification	RL	Qual	Result	Units	DF	<b>Date Analyzed</b>	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)			#1 (15 20 St 1)				
Sulfate	NELAP	200		468	mg/L	20	04/26/2012 20:55	R162909
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED	and the second	Cross, and the second	To West or		
Lab pH	NELAP	1.00		7.71		1	04/24/2012 12:42	R162744
STANDARD METHODS 18TH	I ED. 2340 C						T T	
Hardness, as ( CaCO3 )	NELAP	5	The state of the s	700	mg/L	1	04/24/2012 14:25	R162803
STANDARD METHODS 18TH	ED. 2540 D			60 x 1 - 1	一、			72
Total Suspended Solids	NELAP	6	COMMERCIAL CONTRACTOR CONTRACTOR	< 6	mg/L	1	04/25/2012 8:37	R162831
STANDARD METHODS 18TH	ED. 2540 F					in deligning.	And the second second	
Solids, Settleable	NELAP	0.1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	< 0.1	ml/L	1	04/24/2012 12:33	R162782
STANDARD METHODS 18TH	ED. 5310 C, ORGAN	C CARBON				HATTER IN		TANK TO
Total Organic Carbon (TOC)	NELAP	1.0	armage Towns Section (Section Co.)	2.5	mg/L	1	04/26/2012 14:56	R162912
EPA 600 4.1.1, 200.7R4.4, ME	TALS BY ICP (DISSO	LVED)				4.4		
Cadmium	NELAP	2.00	ARTHUR THE OFFICE OF	< 2.00	µg/L	1	04/24/2012 17:46	77495
Zinc	NELAP	10.0		3300	µg/L	1	04/24/2012 17:46	77495
EPA 600 4.1.4, 200.7R4.4, ME	TALS BY ICP (TOTA	_			4000	171.00		142678
Cadmium	NELAP	2.00	CONSTRUCTION DOV. THE	3.10	µg/L	1	04/25/2012 11:48	77499
Zinc	NELAP	10.0		3720	μg/L	1	04/25/2012 11:48	77499
STANDARD METHODS 18TH	ED. 3030 B, 3113 B.	METALS BY	GFAA (I	DISSOLVED)			<b>8点外是:</b> 一个人还是	XA ALEM
Lead	NELAP	2.00	X	8.31	μg/L	1	04/25/2012 16:56	77498
STANDARD METHODS 18TH	ED. 3030 E, 3113 B.	METALS BY	GFAA			the Samuel	Vice As a series	
Lead	NELAP	2.00	X	14.5	μg/L	1	04/27/2012 10:21	77502



http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

Lab ID: 12041029-003 Client Sample ID: LW-Dup

Matrix: AQUEOUS Collection Date: 04/23/2012 8:45

Analyses	Certification	RL Qual	Result	Units	DF	<b>Date Analyzed</b>	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)						
Sulfate	NELAP	10	21	mg/L	1	04/30/2012 19:13	R163045
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY ANALYZED	4.200		The state of	<b>一种的数</b>	A MARINE
Lab pH	NELAP	1.00	7.94		1	04/24/2012 12:42	R162744
STANDARD METHODS 18TH	ED. 2340 C				All Andrews		
Hardness, as ( CaCO3 )	NELAP	5	240	mg/L	1	04/24/2012 14:25	R162803
STANDARD METHODS 18TH	ED. 2540 D						1200
Total Suspended Solids	NELAP	6	9	mg/L	1	04/25/2012 8:37	R162831
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON					
Total Organic Carbon (TOC)	NELAP	1.0	1.8	mg/L	1	04/26/2012 15:02	R162912
EPA 600 4.1.1, 200.7R4.4, MI	TALS BY ICP (DISSO	LVED)	1.30	13047	1 10		
Cadmium	NELAP	2.00	< 2.00	μg/L	1	04/24/2012 17:51	77495
Zinc	NELAP	10.0	< 10.0	μg/L	1	04/24/2012 17:51	77495
EPA 600 4.1.4, 200.7R4.4, MI	TALS BY ICP (TOTAL				Art 1/2		To the second
Cadmium	NELAP	2.00	< 2.00	μg/L	1	04/25/2012 11:54	77499
Zinc	NELAP	10.0	< 10.0	μg/L	1	04/25/2012 11:54	77499
STANDARD METHODS 18TH	ED. 3030 B, 3113 B, I	METALS BY GFAA (	DISSOLVED)		4-19-		Maria .
Lead	NELAP	2.00	< 2.00	μg/L	1	04/25/2012 17:06	77498
STANDARD METHODS 18TH	ED. 3030 E, 3113 B, I	METALS BY GFAA					<b>爱</b> 養555
Lead	NELAP	2.00	< 2.00	μg/L	1	04/27/2012 10:25	77502



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-May-12

Lab ID: 12041029-004

Client Sample ID: LW-DS

Matrix: AQUEOUS Collection Date: 04/23/2012 8:55

Analyses	Certification	RL	Qual	Result	Units	DF	<b>Date Analyzed</b>	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)							
Sulfate	NELAP	10		29	mg/L	1	04/26/2012 21:03	R162909
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED		and the second			
Lab pH	NELAP	1.00	Control and the Control and th	7.88		1	04/24/2012 12:42	R162744
STANDARD METHODS 18TH	I ED. 2340 C			SI THE ME	1000			
Hardness, as ( CaCO3 )	NELAP	5		240	mg/L	1	04/24/2012 14:25	R162803
STANDARD METHODS 18TH	I ED. 2540 D							
Total Suspended Solids	NELAP	6		< 6	mg/L	1	04/25/2012 8:37	R162831
STANDARD METHODS 18TH	ED. 5310 C, ORGANI	C CARBON	la n		Tales T	Printered		
Total Organic Carbon (TOC)	NELAP	1.0		1.8	mg/L	1	04/26/2012 15:09	R162912
EPA 600 4.1.1, 200.7R4.4, MI	ETALS BY ICP (DISSO	LVED)	Mark .			17. 清晰的		
Cadmium	NELAP	2.00		< 2.00	μg/L	1	04/24/2012 17:57	77495
Zinc	NELAP	10.0		20.5	μg/L	1	04/24/2012 17:57	77495
EPA 600 4.1.4, 200.7R4.4, ME	TALS BY ICP (TOTAL	1			27 2 2 7	1446		
Cadmium	NELAP	2.00		< 2.00	μg/L	1	04/25/2012 12:10	77499
Zinc	NELAP	10.0		23.6	µg/L	1	04/25/2012 12:10	77499
STANDARD METHODS 18TH	ED. 3030 B, 3113 B,	METALS BY	GFAA (	DISSOLVED)	. The H			
Lead	NELAP	2.00	NO STATE OF THE ST	< 2.00	μg/L	1	04/25/2012 17:10	77498
STANDARD METHODS 18TH	I ED. 3030 E, 3113 B, I	METALS BY	GFAA	and profit in	1. 1. 7 Miles 184			
Lead	NELAP	2.00	A THE REAL PROPERTY OF THE PERSON OF THE PER	< 2.00	µg/L	1	04/27/2012 10:28	77502



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Report Date: 01-May-12

Lab ID: 12041029-005

Client Sample ID: LW-US

Matrix: AQUEOUS Collection Date: 04/23/2012 8:35

Analyses	Certification	RL	Qual	Result	Units	DF	<b>Date Analyzed</b>	Batch
EPA 600 375.2 REV 2.0 1993	(TOTAL)							
Sulfate	NELAP	10		21	mg/L	1	04/26/2012 21:05	R162909
STANDARD METHOD 18TH	ED. 4500-H B, LABOR	ATORY AN	ALYZED	The state of the s		v dans	ided to the second	A Parker
Lab pH	NELAP	1.00		7.91		1	04/24/2012 12:42	R162744
STANDARD METHODS 18TH	HED. 2340 C	The state of		TF5 13. 其自				
Hardness, as ( CaCO3 )	NELAP	5		280	mg/L	1	04/24/2012 14:25	R162803
STANDARD METHODS 18TH	H ED. 2540 D				ENTER			Life year
Total Suspended Solids	NELAP	6	R	6	mg/L	1	04/25/2012 8:46	R162831
% RPD was outside the QC limits the PQL, the results are considered.	ed within the precision of the	ne test metho	d and are r		ng/L or less a	nd have a	difference of no greate	r than
					The state of the s			the second secon
STANDARD METHODS 18TH				4.6	ma/l	4	04/26/2012 15:15	B162012
Total Organic Carbon (TOC)	NELAP	1.0		1.6	mg/L	1	04/26/2012 15:15	R162912
Total Organic Carbon (TOC) EPA 600 4.1.1, 200.7R4.4, MI	NELAP ETALS BY ICP (DISSO	1.0 <b>LVED)</b>				1		41.27
Total Organic Carbon (TOC) EPA 600 4.1.1, 200.7R4.4, MI Cadmium	NELAP ETALS BY ICP (DISSO NELAP	1.0 PLVED) 2.00		< 2.00	µg/L	1	04/24/2012 18:21	77495
Total Organic Carbon (TOC) EPA 600 4.1.1, 200.7R4.4, MI	NELAP ETALS BY ICP (DISSO	1.0 <b>LVED)</b>				1 1 1		41.27
Total Organic Carbon (TOC)  EPA 600 4.1.1, 200.7R4.4, MI  Cadmium  Zinc	NELAP ETALS BY ICP (DISSO NELAP NELAP	1.0 <b>LVED)</b> 2.00 10.0		< 2.00	µg/L	1 1 1	04/24/2012 18:21	77495
Total Organic Carbon (TOC) EPA 600 4.1.1, 200.7R4.4, MI Cadmium	NELAP ETALS BY ICP (DISSO NELAP NELAP	1.0 <b>LVED)</b> 2.00 10.0		< 2.00	µg/L	1 1 1	04/24/2012 18:21	77495
Total Organic Carbon (TOC)  EPA 600 4.1.1, 200.7R4.4, MI  Cadmium  Zinc  EPA 600 4.1.4, 200.7R4.4, MI	NELAP ETALS BY ICP (DISSO NELAP NELAP ETALS BY ICP (TOTAL	1.0 PLVED) 2.00 10.0		< 2.00 < 10.0	µg/L µg/L	1 1 1 1	04/24/2012 18:21 04/24/2012 18:21	77495 77495 77499
Total Organic Carbon (TOC)  EPA 600 4.1.1, 200.7R4.4, MI  Cadmium  Zinc  EPA 600 4.1.4, 200.7R4.4, MI  Cadmium	NELAP ETALS BY ICP (DISSO NELAP NELAP ETALS BY ICP (TOTAL NELAP NELAP	1.0 PLVED) 2.00 10.0 10.0 2.00 10.0		< 2.00 < 10.0 < 2.00 < 10.0	µg/L µg/L µg/L µg/L	1 1 1 1	04/24/2012 18:21 04/24/2012 18:21 04/25/2012 12:15	77495 77495 77499
Total Organic Carbon (TOC)  EPA 600 4.1.1, 200.7R4.4, MI Cadmium Zinc  EPA 600 4.1.4, 200.7R4.4, MI Cadmium Zinc	NELAP ETALS BY ICP (DISSO NELAP NELAP ETALS BY ICP (TOTAL NELAP NELAP	1.0 PLVED) 2.00 10.0 10.0 2.00 10.0		< 2.00 < 10.0 < 2.00 < 10.0	µg/L µg/L µg/L µg/L	1 1 1 1 1 1	04/24/2012 18:21 04/24/2012 18:21 04/25/2012 12:15	77495 77495 77499
Total Organic Carbon (TOC)  EPA 600 4.1.1, 200.7R4.4, MI Cadmium Zinc  EPA 600 4.1.4, 200.7R4.4, MI Cadmium Zinc  STANDARD METHODS 18TH	NELAP ETALS BY ICP (DISSO NELAP NELAP ETALS BY ICP (TOTAL NELAP NELAP NELAP H ED. 3030 B, 3113 B, I	1.0 PLVED) 2.00 10.0 -) 2.00 10.0 METALS BY 2.00	' GFAA (I	< 2.00 < 10.0 < 2.00 < 10.0 DISSOLVED	hg/L hg/L	1 1 1 1 1	04/24/2012 18:21 04/24/2012 18:21 04/25/2012 12:15 04/25/2012 12:15	77495 77495 77499 77499



## Sample Summary

http://www.teklabinc.com/

Client: Barr Engineering Company

Client Project: Leadwood MTS-25/86-0013

Work Order: 12041029 Report Date: 01-May-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
12041029-001	LW-001	Aqueous	5	04/23/2012 9:45
12041029-002	LW-002	Aqueous	5	04/23/2012 9:15
12041029-003	LW-Dup	Aqueous	5	04/23/2012 8:45
12041029-004	LW-DS	Aqueous	5	04/23/2012 8:55
12041029-005	LW-US	Aqueous	5	04/23/2012 8:35



# **Dates Report**

http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Sample ID	Client Sample ID Test Name	Collection Date	Received Date  Prep Date/Time	Analysis Date/Time
12041029-001A	LW-001	04/23/2012 9:45	4/24/2012 11:00:00 AM	
	Standard Methods 18th Ed. 2540 F			04/24/2012 12:33
12041029-001B	LW-001	04/23/2012 9:45	4/24/2012 11:00:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)			04/26/2012 20:41
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed			04/24/2012 12:42
	Standard Methods 18th Ed. 2340 C			04/24/2012 14:25
	Standard Methods 18th Ed. 2540 D			04/25/2012 8:37
12041029-001C	LW-001	04/23/2012 9:45	4/24/2012 11:00:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		04/24/2012 14:17	04/25/2012 11:43
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFA	A	04/24/2012 15:41	04/27/2012 10:03
12041029-001D	LW-001	04/23/2012 9:45	4/24/2012 11:00:00 AM	
20,4	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		04/24/2012 13:35	04/24/2012 17:28
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFA	A (Dissolved)	04/24/2012 14:06	04/25/2012 16:53
12041029-001E	LW-001	04/23/2012 9:45	4/24/2012 11:00:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			04/26/2012 14:49
12041029-002A	LW-002	04/23/2012 9:15	4/24/2012 11:00:00 AM	
12	Standard Methods 18th Ed. 2540 F		ANTINAMENT CONTROL OF THE PROPERTY OF THE PROP	04/24/2012 12:33
12041029-002B	LW-002	04/23/2012 9:15	4/24/2012 11:00:00 AM	04/24/2012 12:55
12041029-002B		07/23/2012 3:13		04/06/2012 20:55
	EPA 600 375.2 Rev 2.0 1993 (Total)			04/26/2012 20:55
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed			04/24/2012 12:42 04/24/2012 14:25
	Standard Methods 18th Ed. 2340 C Standard Methods 18th Ed. 2540 D			04/25/2012 8:37
12041029-002C	Standard Methods 18th Ed. 2540 D  LW-002	04/23/2012 9:15	4/24/2012 11:00:00 AM	04/23/2012 8.37
12041029-002C		04/23/2012 9.13		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		04/24/2012 14:17	04/25/2012 11:48
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFA	2774743 277	04/24/2012 15:41	04/27/2012 10:21
12041029-002D	LW-002	04/23/2012 9:15	4/24/2012 11:00:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		04/24/2012 13:35	04/24/2012 17:46
-	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFA		04/24/2012 14:06	04/25/2012 16:56
12041029-002E	LW-002	04/23/2012 9:15	4/24/2012 11:00:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			04/26/2012 14:56
12041029-003A	LW-Dup	04/23/2012 8:45	4/24/2012 11:00:00 AM	
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed		Control College Security Secur	04/24/2012 12:42
	Standard Methods 18th Ed. 2340 C			04/24/2012 14:25
	Standard Methods 18th Ed. 2540 D			04/25/2012 8:37
12041029-003B	LW-Dup	04/23/2012 8:45	4/24/2012 11:00:00 AM	
	EPA 600 375.2 Rev 2.0 1993 (Total)		and the state of t	04/30/2012 19:13



# **Dates Report**

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

Sample ID	Client Sample ID	Collection Date	Received Date	No.
	Test Name		Prep Date/Time	Analysis Date/Time
12041029-003C	LW-Dup	04/23/2012 8:45	4/24/2012 11:00:00 AM	
THE STANDS AND THE STANDS AND THE STANDS	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)	The state of the s	04/24/2012 14:17	04/25/2012 11:54
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF	'AA	04/24/2012 15:41	04/27/2012 10:25
12041029-003D	LW-Dup	04/23/2012 8:45	4/24/2012 11:00:00 AM	
- ALT STRUM SEAST MERCH	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)	2 - 2 - 2 - 2 - 2 - 4 - 4 - 4 - 4 - 4 -	04/24/2012 13:35	04/24/2012 17:51
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GF	FAA (Dissolved)	04/24/2012 14:06	04/25/2012 17:06
12041029-003E	LW-Dup	04/23/2012 8:45	4/24/2012 11:00:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon	27、12、12、12、19、19、19、19、19、19、19、19、19、19、19、19、19、	他的基本工作的中华中的一个大型 V 1000 V 1	04/26/2012 15:02
12041029-004A	LW-DS	04/23/2012 8:55	4/24/2012 11:00:00 AM	
· · · · · · · · · · · · · · · · · · ·	Standard Method 18th Ed. 4500-H B, Laboratory Analyze	d	agazata an dalipos	04/24/2012 12:42
	Standard Methods 18th Ed. 2340 C			04/24/2012 14:25
	Standard Methods 18th Ed. 2540 D			04/25/2012 8:37
12041029-004B	LW-DS	04/23/2012 8:55	4/24/2012 11:00:00 AM	7 No. 1
	EPA 600 375.2 Rev 2.0 1993 (Total)			04/26/2012 21:03
12041029-004C	LW-DS	04/23/2012 8:55	4/24/2012 11:00:00 AM	
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		04/24/2012 14:17	04/25/2012 12:10
	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF	AA	04/24/2012 15:41	04/27/2012 10:28
12041029-004D	LW-DS	04/23/2012 8:55	4/24/2012 11:00:00 AM	
The state of the s	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		04/24/2012 13:35	04/24/2012 17:57
	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GF	AA (Dissolved)	04/24/2012 14:06	04/25/2012 17:10
12041029-004E	LW-DS	04/23/2012 8:55	4/24/2012 11:00:00 AM	
	Standard Methods 18th Ed. 5310 C, Organic Carbon			04/26/2012 15:09
12041029-005A	LW-US	04/23/2012 8:35	4/24/2012 11:00:00 AM	
	Standard Method 18th Ed. 4500-H B, Laboratory Analyzed			04/24/2012 12:42
	Standard Methods 18th Ed. 2340 C	1		04/24/2012 12:42
	Standard Methods 18th Ed. 2540 D			04/25/2012 8:46
12041029-005B	LW-US	04/23/2012 8:35	4/24/2012 11:00:00 AM	04/25/2012 6:40
			是是是自己的自己的。	04/06/2012 21:05
12041029-005C	EPA 600 375.2 Rev 2.0 1993 (Total)  LW-US	04/23/2012 8:35	4/24/2012 11:00:00 AM	04/26/2012 21:05
12041029-003C		04/23/2012 8.55		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)		04/24/2012 14:17	04/25/2012 12:15
12041020 005D	Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GF.	The state of the s	04/24/2012 15:41	04/27/2012 10:31
12041029-005D	LW-US	04/23/2012 8:35	4/24/2012 11:00:00 AM	
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)		04/24/2012 13:35	04/24/2012 18:21
Product Code education	Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GF.	COLOR DE SULTABAN PARADAMENTA NO S	04/24/2012 14:06	04/25/2012 17:20
12041029-005E	LW-US	04/23/2012 8:35	4/24/2012 11:00:00 AM	A STATE OF THE STA
	Standard Methods 18th Ed. 5310 C, Organic Carbon			04/26/2012 15:15



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Batch R162909	V 2.0 1993 (∏ SampType:			Units mg/L			CONTRACTOR OF THE PARTY OF THE	AS A PARTY OF			and the state of t
SampID: ICB/MBLK		WIDER		Onits Hig/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		< 10						04/26/2012
Batch R162909 SampID: ICV/LCS	SampType:	LCS		Units mg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		22	20	0	109.6	90	110	04/26/2012
Batch R163045 SampID: ICB/MBLK	SampType:	MBLK		Units mg/L				20			Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		< 10						04/30/2012
Batch R163045 SampID: ICV/LCS	SampType:	LCS		Units mg/L						п	Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Sulfate			10		22	20	0	108.3	90	110	04/30/2012
Cullato			10		22	20	U	100.3	30	110	04/00/2012
STANDARD METH	OD 18TH ED	). 4500	747, AND 357, COS	BORATORY A	ra baar canaa		U	100.3	30	110	04/00/2012
	OD 18TH EE		747, AND 357, COS	ABORATORY A	ra baar canaa		V	106.3	30	110	Date
STANDARD METH			747, AND 357, COS		ra baar canaa	D	SPK Ref Val			High Limit	
STANDARD METH Batch R162744 SampID: LCS			-H B, LA	Units	NALYZE	<b>D</b> Spike					Date
STANDARD METH Batch R162744 SampID: LCS Analyses Lab pH	SampType: SampType:	LCS	- <b>H B, LA</b> RL	Units	<b>NALYZE</b> Result	<b>D</b> Spike	SPK Ref Val	%REC	Low Limit 99.1	High Limit	Date Analyzed 04/24/2012
STANDARD METH Batch R162744 SampID: LCS Analyses Lab pH  Batch R162744 SampID: 12041029-0	SampType: SampType:	LCS	RL 1.00	Units  Qual  Units	Result 6.99	Spike 7.00	SPK Ref Val	%REC 99.9	Low Limit 99.1 RPD	High Limit 100.8 Limit 10	Date Analyzed 04/24/2012 Date
STANDARD METH Batch R162744 SampID: LCS Analyses Lab pH  Batch R162744 SampID: 12041029-0 Analyses	SampType: SampType:	LCS	RL 1.00	Units Qual	Result 6.99	Spike 7.00	SPK Ref Val	%REC 99.9	Low Limit 99.1 RPD RPD Ref \	High Limit 100.8  Limit 10  /al %RPD	Date Analyzed 04/24/2012 Date Analyzed
STANDARD METH Batch R162744 SampID: LCS Analyses Lab pH  Batch R162744 SampID: 12041029-0	SampType: SampType:	LCS	RL 1.00	Units  Qual  Units	Result 6.99	Spike 7.00	SPK Ref Val	%REC 99.9	Low Limit 99.1 RPD	High Limit 100.8 Limit 10	Date Analyzed 04/24/2012 Date Analyzed
STANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESTANDARD METHOMATI	SampType: 001BDUP SampType:	DUP	RL 1.00	Units  Qual  Units	Result 6.99	Spike 7.00	SPK Ref Val	%REC 99.9	Low Limit 99.1 RPD RPD Ref \ 8.020	High Limit 100.8  Limit 10  /al %RPD	Date Analyzed 04/24/2012 Date Analyzed 04/24/2012
STANDARD METH Batch R162744 SampID: LCS Analyses Lab pH  Batch R162744 SampID: 12041029-0 Analyses Lab pH  Batch R162744 SampID: 12041029-0	SampType: 001BDUP SampType:	DUP	RL 1.00	Units  Qual  Units  Qual  Units	Result 6.99 Result 8.03	Spike 7.00	SPK Ref Val 0 SPK Ref Val	%REC 99.9 %REC	Low Limit 99.1  RPD  RPD Ref \ 8.020	High Limit 100.8 Limit 10 /al %RPD 0.12	Date Analyzed 04/24/2012 Date Analyzed
STANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESEARCH RESTANDARD METHOMATICAL RESTANDARD METHOMATI	SampType: 001BDUP SampType:	DUP	RL 1.00	Units  Qual  Units  Qual	Result 6.99 Result 8.03	Spike 7.00	SPK Ref Val	%REC 99.9 %REC	Low Limit 99.1  RPD  RPD Ref \ 8.020	High Limit 100.8  Limit 10  /al %RPD 0.12  Limit 10	Date Analyzed 04/24/2012  Date Analyzed 04/24/2012  Date Analyzed
STANDARD METHOMATCH R162744 SampID: LCS Analyses Lab pH  Batch R162744 SampID: 12041029-0 Analyses Lab pH  Batch R162744 SampID: 12041029-0 Analyses Lab pH  Analyses Lab pH	SampType: 001BDUP SampType:	DUP	RL 1.00	Units  Qual  Units  Qual  Units	Result 6.99  Result 8.03	Spike 7.00	SPK Ref Val 0 SPK Ref Val	%REC 99.9 %REC	Low Limit 99.1  RPD RPD Ref \( \) 8.020  RPD RPD Ref \( \) 7.710	High Limit 100.8  Limit 10  /al %RPD 0.12  Limit 10	Date Analyzed 04/24/2012  Date Analyzed 04/24/2012  Date Analyzed
STANDARD METHOMATICAL RIGITIAN STANDARD METHOMATICAL RIGITIAN SAMPID: LCS Analyses Lab pH  Batch R162744 SampiD: 12041029-0 Analyses Lab pH  Batch R162744 SampiD: 12041029-0 Analyses Lab pH	SampType: 001BDUP SampType: 002BDUP SampType:	DUP	RL 1.00	Units  Qual  Units  Qual  Units  Qual	Result 6.99  Result 8.03  Result 7.70	Spike 7.00 Spike	SPK Ref Val 0 SPK Ref Val	%REC 99.9 %REC	Low Limit 99.1  RPD RPD Ref \( \) 8.020  RPD RPD Ref \( \) 7.710	High Limit 100.8  Limit 10  /al %RPD 0.12  Limit 10  /al %RPD 0.13	Date Analyzed 04/24/2012  Date Analyzed 04/24/2012



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Batch R162744	SampType:	DUP		Units					RPE	D Limit 10	
SampID: 12041029-	004ADUP										Date
Analyses			RL	Qual		Spike	SPK Ref Val	%REC		Val %RPD	Analyzed
Lab pH			1.00		7.89				7.880	0.13	04/24/2012
Batch R162744	SampType:	DUP		Units					RPE	Limit 10	
SampID: 12041029-	005ADUP										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	Val %RPD	Analyzed
Lab pH			1.00		7.92				7.910	0.13	04/24/2012
STANDARD METH	ODS 18TH E	ED. 234	юс							4 7 2 3	
Batch R162803 SampID: MB-R1628	SampType: 03	MBLK		Units mg/L							Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Hardness, as ( Car	CO3 )		5	<b>V</b>	< 5	Бриго		A			04/24/2012
Batch R162803	SampType:	LCS		Units mg/L							2 (4.2
SampID: LCS-R162	803										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Hardness, as ( Cat	003)		5		1020	1000	0	102.0	90	110	04/24/2012
Batch R162803	SampType:	MS	-	Units mg/L			***************************************		***************************************		
SampID: 12041029-	004AMS										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Hardness, as ( Cat	003)		5		620	400	240.0	95.0	85	115	04/24/2012
Batch R162803	SampType:	MSD		Units mg/L					RPD	Limit 10	
SampID: 12041029-	004AMSD										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Hardness, as ( Cat	CO3 )		5		640	400	240.0	100	620.0	3.17	04/24/2012
STANDARD METH	ODS 18TH E	D. 254	0 D				and the second		Was Karl		
Batch R162831	SampType:	MBLK		Units mg/L							
SampID: MBLK											Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Suspended S	olids		6		< 6						04/25/2012
Batch R162831	SampType:	LCS		Units mg/L							
SampID: LCS											Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Suspended S			6		106	100	0	106.0	85	115	04/25/2012
Total Suspended S Total Suspended S			6		100	100	0	100	85	115	04/25/2012
	olido		6		108	100	0	108.0	85	115	04/25/2012



http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

STANDARD METHODS 18TH		10 D					Se las		The State of the S	
<b>Batch</b> R162831 SampType: SampID: 12041029-005a DUP	DUP		Units mg/L					RPD	Limit 15	Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	Val %RPD	Analyzed
Total Suspended Solids		6	R	8				6.000	28.57	04/25/201
STANDARD METHODS 18TH	ED. 531	0 C, OR	GANIC CARB	ON			V-1-1-1			
Batch R162912 SampType: SampID: ICB/MBLK	MBLK		Units mg/L							Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		1.0		< 1.0						04/26/2012
Batch R162912 SampType: SampID: ICV/LCS	LCS		Units mg/L					a*	^	Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		5.0		50.4	48.2	0	104.5	89.6	109.5	04/26/2012
<b>Batch R162912 SampType:</b> SampID: 12041029-005EMS	MS		Units mg/L		2 2 2 2 <sup>3</sup>				2	Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Total Organic Carbon (TOC)		1.0		6.6	5.0	1.650	100	80	120	04/26/2012
<b>Batch</b> R162912 SampType: SampID: 12041029-005EMSD	MSD		Units mg/L					RPD Limit 15		Date
Analyses		RL	Oual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed
Total Organic Carbon (TOC)		1.0		6.7	5.0	1.650	101.2	6.650	0.90	04/26/2012
EPA 600 4.1.1, 200.7R4.4, ME	TALS B	Y ICP (E	DISSOLVED)							7.10
<b>Batch</b> 77495 SampType: SampID: MB-77495	MBLK		Units µg/L							Date
Analyses		RL	Qual	Result		SPK Ref Val		Low Limit	High Limit	Analyzed
Cadmium		2.00		< 2.00	2.00	0	0	-100	100	04/24/2012
Zinc		10.0		< 10.0	10.0	0	0	-100	100	04/24/2012
Batch 77495 SampType: SampID: LCS-77495	LCS		Units µg/L						ĸ	Date
Analyses		RL	Qual	Result		SPK Ref Val	%REC		High Limit	Analyzed
Cadmium		2.00		45.0		0	90.0	85	115	04/24/2012
Zinc		10.0		476	500	0	95.1	85	115	04/24/2012
<b>Batch 77495 SampType:</b> SampID: 12041029-001DMS	MS		Units µg/L							Date
Analyses		RL	Qual			SPK Ref Val			High Limit	Analyzed
		2.00		45.8	50.0	2.6	86.4	75	125	04/24/2012
Cadmium Zinc		10.0		2900	500	2485	82.4	75 75	125	04/24/2012



http://www.teklabinc.com/

Client: Barr Engineering Company

Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013

Batch 77495	SampType:	MSD		Units µg/L					RPD	Limit 20	
SampID: 12041029	-001DMSD										Date
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	/al %RPD	Analyzed
Cadmium			2.00		45.4	50.0	2.6	85.6	45.8	0.88	04/24/2012
Zinc			10.0		2890	500	2485	81.6	2897	0.14	04/24/2012
EPA 600 4.1.4, 200	D.7R4.4, MET	TALS BY	ICP (T	OTAL)							100
Batch 77499 SampID: MB-77499	SampType:	MBLK		Units µg/L							Dut
Analyses		]	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium			2.00		< 2.00	2.00	0	0	-100	100	04/25/2012
Zinc			10.0		< 10.0	10.0	0	22.0	-100	100	04/25/2012
Batch 77499 SampID: LCS-7749	SampType:	LCS		Units µg/L							Date
Analyses		1	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00	Quai	49.0	50.0	0	98.0	85	115	04/25/2012
Zinc			10.0		511	500	0	102.1	85	115	04/25/2012
Batch 77499 SampID: 12041029		MS		Units µg/L							Date
Analyses		]	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Cadmium			2.00		47.7	50.0	0	95.4	75	125	04/25/2012
Zinc			10.0		514	500	0	102.7	75	125	04/25/2012
Batch 77499 SampType: MSD Units µg/L					<del>,</del>		RPD				
SampID: 12041029- Analyses	·003CMSD	1	RL	Oual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD		Date Analyzed
Cadmium			2.00		48.1	50.0	0	96.2	47.7	0.84	04/25/2012
Zinc			10.0		512	500	0	102.4	513.6	0.35	04/25/2012
STANDARD METH	IODS 18TH E	D. 3030	B, 311	3 B, METALS	BY GFA	(DISS	OLVED)				7.4
<b>Batch 77498</b> SampID: MB-77498	SampType:	MBLK		Units µg/L							Date
Analyses		I	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead			2.00		< 2.00	2.00	0	0	-100	100	04/27/2012
Lead			2.00		< 2.00	2.00	0	26.9	-100	100	04/25/2012
<b>Batch 77498</b> SampID: LCS-77498	SampType:	LCS		Units µg/L							Date
Analyses		F	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed
Lead			2.00		14.5		0	96.4	85	115	04/27/2012
Lead			2.00		15.6	15.0	0	104.0	85	115	04/25/2012



# **Quality Control Results**

http://www.teklabinc.com/

Client: Barr Engineering Company Work Order: 12041029

Client Project: Leadwood MTS-25/86-0013 Report Date: 01-May-12

STANDARD METU	ODE 40TU I	ED 202	O. D. 244	I2 D. METAL C	DV CEA	\/Diec	OLVEDY	7. V		7 3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	W. W. Carlotte	
STANDARD METH Batch 77498	SampType:		ט ם, או	Units µg/L	DI GFAA	א (טוסט	OLVED	August 1			8300 Hills 1997	
SampID: 12041029-				- 67							Date	
Analyses			RL	Oual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead			2.00		22.6	15.0	8.3059	95.2	70	130	04/25/2012	
Batch 77498	SampType:	MSD		Units µg/L					RPD	Limit 20		
SampID: 12041029-	002DMSD											
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref	/al %RPD	Analyzed	
Lead			2.00		22.4	15.0	8.3059	94.1	22.5799	0.70	04/25/2012	
STANDARD METH	ODS 18TH E	ED. 303	0 E. 311	3 B. METALS	BY GFAA							
Batch 77502	SampType:			Units µg/L	-1 -1.2	244. 3 (C.S.)	et in 100 del Adam (100 de desirio).	727004.76		A STATE OF THE PARTY	SERVICE STATE OF THE SERVICE OF THE	
SampID: MB-77502											Date	
Analyses			RL	Oual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead			2.00		< 2.00	2.00	0	0	-100	100	04/27/2012	
<b>Batch 77502</b> SampID: LCS-77502	SampType:	LCS		Units µg/L							Date	
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead			2.00	V uui	15.4	15.0	0	102.4	85	115	04/27/2012	
Batch 77502 SamplD: 12041029-6	SampType: 001CMS	MS		Units µg/L							Date	
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead			4.00		25.0	15.0	9.1956	105.5	70	130	04/27/2012	
Batch 77502	SampType:	MSD	Units µg/L RPD Limit 20									
SampID: 12041029-0	001CMSD										Date	
Analyses			RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref \	/al %RPD	Analyzed	
Lead			4.00		24.3	15.0	9.1956	101.0	25.0172	2.72	04/27/2012	



Client: Barr Engineering Company

Client Project: Leadwood MTS-25/86-0013

# **Receiving Check List**

http://www.teklabinc.com/

Work Order: 12041029

Carrier: Heather Riley  Completed by: On: 24-Apr-12  Timothy W. Mathis	1	eceived By: SR Reviewed by: On: 4-Apr-12	H MULH Michael L. Austin								
Pages to follow: Chain of custody 1	Extra pages inclu	ded 0	]								
Shipping container/cooler in good condition?	Yes 🗹	No 🗌	Not Present		Temp °C	5.2					
Type of thermal preservation?	None	Ice 🗸	Blue Ice		Dry Ice						
Chain of custody present?	Yes 🗸	No 🗌									
Chain of custody signed when relinquished and received?	Yes 🗹	No 🗌	¥								
Chain of custody agrees with sample labels?	Yes 🗸	No 🗌									
Samples in proper container/bottle?	Yes 🗸	No 🗌									
Sample containers intact?	Yes 🗸	No 🗌									
Sufficient sample volume for indicated test?	Yes 🗸	No 🗌									
All samples received within holding time?	Yes 🗸	No 🗌									
Reported field parameters measured:	Field	Lab 🗸	NA								
Container/Temp Blank temperature in compliance?	Yes 🗹	No 🗌									
When thermal preservation is required, samples are complia 0.1°C - 6.0°C, or when samples are received on ice the same		ire between									
Water – at least one vial per sample has zero headspace?	Yes	No 🗔	No VOA vials	<b>✓</b>							
Water - TOX containers have zero headspace?	Yes	No 🗌	No TOX containers	<b>✓</b>							
Water - pH acceptable upon receipt?	Yes 🗸	No 🗆									
Any No responses must be detailed below or on the COC.											
Custody seal(s) intact on shipping container/cooler. TWM 4/24/12											

## MARINE FORMAN

## **Teklab Chain of Custody**

Pg. Lof L Workorder 2041029

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax:(618)344-1005 Preserved in 

Lab Field Barr Engineering Co. Tm 4.24.12 1001 Diamond Ridge, Suite 1100 Cooler Temp 5.7 Sampler Chris Schulte Jefferson City 65109 MO Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com Comments Matrix is surface water. Leadwood MTS - 25/86-0013 Metals = Cd, Pb, ZnAllison Olds aolds@barr.com Phone 573-638-5007 Requested Due Date Standard Billing/PO Per contract with Doe Run Contact eMail Settleable Solids **Fotal Metals** Sulfate T.O.C Lab Use Sample ID Sample Date/Time Preservative Matrix H 12041029  $\times$ X X X X X LW-001 Unpres 5 Aqueous 001 X X X X X Unpres 5 LW-002 Aqueous 002 8:45 X X X X Unpres Aqueous 003 8:55  $\times$ X X X X LW-DS Unpres Aqueous 004 Unpres 5 X X LW-US Aqueous 005 Aqueous Unpres Unpres Aqueous Unpres Aqueous Relinquished By \* Date/Time/ Received By Date/Time 14:45

<sup>\*</sup> The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.